

REMARKS

Claims 1-28 are pending in this application. As a result of claim amendments in this Response to Office Action, claims 1-28 will still be pending in this application.

In the Office Action, the Examiner withdrew his rejections of claims 1-28 under 35 U.S.C. §112, first and second paragraphs, and under §103 as obvious in view of U.S. Patents Nos. 3,954,727 (Toshkov), 5,074,960 (Nimz), and 6,228,213 (Hannah) and WO 99/60027 (Jollez). Applicants thank the Examiner for his careful consideration of the issues and for withdrawal of the rejections.

Now, the Examiner has objected to claim 28 under 37 C.F.R. §1.75(c), stating that claim 28 is a repeat of claim 27 and does not further limit the subject matter of claim 1. In response, Applicants have amended claim 28 so that it depends from claim 12, the second independent process claim, instead of claim 1. Accordingly, this objection should be withdrawn.

The Examiner rejected claims 1-3 and 5-28 under 35 U.S.C. §103(a) as being unpatentable over WO 99/60027 (Jollez) in view of U.S. Patents No. 3,954,727 (Toshkov) and further in view of U.S. Patent No. 6,344,109 (Gross). With regard to claims 1, 11 and 12, the Examiner states that Jollez teaches a process of making high purity microcrystalline cellulose without the use of any mineral acids but is silent as to cooking the pulp in a reactor. The Examiner further states that Toshkov teaches a process of preparing microcrystalline cellulose wherein the pulp is cooked in a reactor to a desired temperature and pressure for a duration of time to obtain the desired degree of polymerization. The Examiner states that it would have been obvious to combine Jollez and Toshkov, but that they are silent on pressing and decompacting the pulp in the preparation stage. According to the Examiner, Gross discloses a process of making a cellulose product, wherein the pulp is prepared by first blotting the pulp to remove water from an aqueous solution and then fluffing of the pulp, and it would have been obvious to one skilled in the art to combine the teachings of Jollez and Toshkov with Gross so that the combination would provide for a starting pulp that is clean and readily reactive in the reactor of Jollez and Toshkov.

The Examiner also rejected claim 4 under 35 U.S.C. §103(a) as being unpatentable over Jollez in view of Toshkov and Gross and further in view of U.S. Patent No. 6,228,213 (Hannah). The Examiner states that Jollez, Toshkov and Gross teach a drying step but fail to disclose that the drying is performed with a spray dryer. According to the Examiner, Hannah discloses a process of making microcrystalline cellulose wherein drying is performed with a spray dryer, and it would have been obvious to one skilled in the art to combine the teachings of Jollez, Toshkov, Gross and Hannah because such a combination would lower drying time in the process of Jollez as disclosed by Hannah.

Applicant traverses the Examiner's rejections.

The Examiner states that Jollez sets forth a process of making microcrystalline cellulose without the use of any mineral acids but without cooking the pulp in a reactor. However, Applicants stress that the process of Jollez necessarily includes the step of subjecting the intermediate pulp to heating through a steam explosion treatment in order to obtain a treated pulp (see Jollez, for example at Abstract, lines 3-4; at page 4, lines 4-7; at page 5, lines 1-2; and at page 8, lines 7-12). Every embodiment of the process disclosed in Jollez for making high purity microcrystalline cellulose requires the step of steam explosion, including both examples (see Example 1 at page 12, lines 1-5, and Example 2 at page 13, lines 13-18).

By contrast, claims 1 and 12 specify that the claimed process of preparing microcrystalline cellulose occurs "in the absence of a violent non-selective depressurization", i.e., steam explosion. The present specification specifically states that no steam explosion is used (at page 1, lines 14-18, at page 3, line 25 - page 4, line 7, and at page 15, lines 11-19). Thus, for the Examiner to state that the difference between the claimed invention and the process of Jollez is that "Jollez is silent as to cooking the pulp in a reactor" is incorrect, because Jollez requires a step of steam explosion that is specifically excluded by the present claims. In fact, Jollez teaches away from the process of preparing microcrystalline cellulose claimed herein, by requiring the step of steam explosion that is specifically excluded by the present claims.

Similarly, the Examiner states that Toshkov teaches a process of preparing microcrystalline cellulose wherein the pulp is cooked in a reactor to a desired temperature and pressure for a duration of time to obtain the desired degree of polymerization. However, Applicants stress that the process of Toshkov necessarily includes the chemical de-aggregation of the intermediate cellulose product using a dilute sulphuric acid (see Toshkov, for example at column 2, lines 3-7). Every embodiment of the process disclosed in Toshkov for preparing microcrystalline cellulose requires the use of sulphuric acid, including both examples (see Example 1 at col. 2, line 28, and Example 2 at col. 2, line 43, both of which require the presence of a 1% solution of sulphuric acid).

By contrast, claims 1 and 12 specify that the claimed process of preparing microcrystalline cellulose occurs “in the absence of any mineral acids or sulphuric dioxide”. The present specification specifically states that no mineral acids or sulphuric dioxide are used (page 2, lines 10-12, at page 5, lines 1-10, and at page 14, line 25). Thus, because Toshkov requires a step of chemical de-aggregation using sulphuric acid that is specifically excluded by the present claims, Toshkov actually teaches away from the process of preparing microcrystalline cellulose as claimed herein.

In addition, the Examiner states that the combination of Jollez and Toshkov is silent on pressing and decompacting the pulp in the preparation stage, and that Gross discloses a process of making a cellulose product, wherein the pulp is prepared by first blotting the pulp to remove water from an aqueous solution and then fluffing of the pulp. Implicit in the Examiner’s rejection is that the step of pressing and decompacting the pulp in the preparation stage is the only difference between the claimed invention and the combination of Jollez and Toshkov, such that the combination of Jollez and Toshkov with Gross renders the claims obvious. This is incorrect.

Applicants submit that the combination of Jollez and Toshkov is missing much more than just the steps of pressing and decompacting the pulp in the preparation stage. Rather, because both Jollez and Toshkov require steps that are specifically excluded by the claims, the combination of those references cannot be said to include those steps. For example, Jollez

requires a step of steam explosion that is specifically excluded by the present claims, and the combination of Jollez and Toshkov therefore cannot be said to meet the negative limitation in the claims of “in the absence of a violent non-selective depressurization”. Likewise, Toshkov requires a step of chemical de-aggregation using sulphuric acid that is specifically excluded by the present claims, and the combination of Jollez and Toshkov therefore cannot be said to meet the negative limitation in the claims of “in the absence of any mineral acids”. Accordingly, the combination of Jollez and Toshkov is missing much more than just pressing and decompacting the pulp in the preparation stage, and the combination of Jollez and Toshkov with Gross, even if Gross were appropriate, would not be sufficient to render the claims obvious.

With regard to the actual rejection of Jollez and Toshkov in view of Gross, Applicants first point out to the Examiner that Gross discloses a process of softening cellulose pulp, not a process for making a cellulose product as claimed herein. As such, whereas Gross discloses a process that is in the same general field as the claimed process, it is not directed to the same goal as that of the claimed invention. Accordingly, Gross is not an appropriate reference for combination with Jollez and Toshkov to render the claims obvious.

However, even if Gross is an appropriate reference for combination with Jollez and Toshkov, the process of softening cellulose pulp discussed in Gross is directed to the use of a combination of chemical softening agents, which includes both a debonder and a plasticizer, which are both required in Gross’s new process for softening pulps (see Gross at Abstract, at column 2, lines 38-63; at column 3, lines 53-61; at column 4, lines 7-27). Every embodiment of the process disclosed in Gross for softening pulps requires the use of chemical softening agents, namely either a debonder or a plasticizer or both, including all of examples 1-12. By contrast, the present application does not mention anything about chemical softening agents, and the claims are similarly without any hint of the use of chemical softening agents. Thus, by requiring chemical softening agents, Gross actually teaches away from the process of preparing microcrystalline cellulose as claimed herein.

Furthermore, the section from Gross that the Examiner quoted as support for the claim steps of “pressing the pulp” and “decompacting the pulp” do not disclose the full claim steps. The Examiner quotes column 9, lines 22-40, yet this section within Example 1 states as follows:

In this experiment, 1.5 by 6.0 inch (about 4.5 g) strips of Southern Softwood Kraft pulp sheets were saturated with 5% aqueous solution containing softening agents, as indicated in the tables, and excess solution was removed by momentary blotting. The strips were dried at 109° C for 60 minutes.

Ease of fiberization, which unequivocally indicates debonding and softening of pulp fibers, was assessed using a laboratory blender operated at a fixed speed and time on 0.7 g samples of modified pulp sheets. When fully opened by impacting the blades of the blender, the fluff gathers near the top of the blender away from the blades. The samples were fluffed as completely as possible in the blender and subsequently formed into 2.25 inch diameter pads at a basis weight of 390 gsm. After pressing for 10 seconds at 30 psi and again at 60 psi the densities of the sheets were measured.

However, claims 1 and 12 refer to “b) pressing the pulp obtained in a) in order to remove water” and “c) decompacting of the pulp obtained in b)”. Gross does not disclose pressing the pulp in order to remove water, but rather in order to remove the aqueous solution containing softening agents. This is very different, especially since the claimed process does not utilize softening agents at all. This is in fact even more remote from the claimed invention because Gross is directed to a process that is different from the claimed process. Accordingly, Gross does not disclose the step alleged by the Examiner to be anticipated.

As discussed above, even the combination of Jollez, Toshkov and Gross does not teach the process of the claimed invention. Jollez requires the use of a steam explosion in order to make microcrystalline cellulose, whereas the use of a steam explosion is specifically excluded in the claims, and Toshkov requires the use of a sulphuric acid in order to make microcrystalline cellulose, whereas the use of a mineral acid or sulphuric dioxide is specifically excluded in the claims. Moreover, Gross, which is not directed to a process of making microcrystalline cellulose, but rather to softening it, is not comparable and also does not disclose the step of pressing the pulp in order to remove water. As such, the invention of claims 1-28 cannot be rendered obvious by the Jollez, Toshkov and Gross references, at least two of which require steps that are specifically excluded in the claimed invention. Accordingly, Applicants respectfully request that the Examiner withdraw his rejections of claims 1-28.

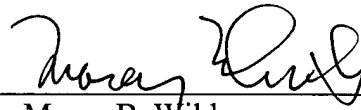
Conclusion

Reconsideration of the present application, as amended, is requested. If, upon review, the Examiner is unable to issue an immediate Notice of Allowance, the Examiner is respectfully requested to telephone Applicant's undersigned attorney in order to resolve any outstanding issues and advance the prosecution of the case.

An early and favorable action on the merits is earnestly solicited.

Respectfully Submitted,
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